



# Chem!stry

Name: ..... ( )

Class: .....

Date: ..... / ..... / .....

## Student's Reflection on Learning

- Chemical bonding.
- Solubility rules.
- Acids, bases and salts.
- Valency and chemical formulae.
- Balancing chemical equations.
- Qualitative tests for gases.

1. • **Check:** I am able to identify chemicals that are bonded ionically and covalently.

• **Test:** Which of the following chemicals are bonded ionically, and which chemicals are bonded covalently?

a) sodium oxide ..... b) magnesium chloride .....

c) sulfur dioxide ..... d) nitrogen triiodide .....

e) aluminium chloride ..... f) carbon disulfide .....

g) potassium bromide ..... h) phosphorus trichloride .....

• **Action:** I can do this:  I can do this after more revision:  I need more help:

2. • **Check:** I can draw dot-and-cross diagrams to represent the bonding in both ionic and covalent compounds.

• **Test:** Draw the dot-and-cross diagram to show the arrangement of the electrons, and hence the bonding, in each of the following compounds. Draw the valence electrons only.

a) sodium nitride b) magnesium chloride

c) carbon disulfide d) phosphorus trichloride

• **Action:** I can do this:  I can do this after more revision:  I need more help:

3. • **Check:** I know the formulae and valencies of the polyatomic ions.
- **Test:** What are the formulae (including charge) and valencies of the following polyatomic ions?
- a) nitrate .....                      b) carbonate .....
- c) hydroxide .....                      d) sulfate .....
- e) ammonium .....                      f) phosphate .....
- **Action:** I can do this:       I can do this after more revision:       I need more help:
4. • **Check:** I can recall which chemicals are soluble and insoluble in water.
- **Test:** Which of the following chemicals are soluble / insoluble in water?
- a) sodium sulfate .....                      b) calcium carbonate .....
- c) lead(II) nitrate .....                      d) silver chloride .....
- e) barium sulfate .....                      f) ammonium carbonate .....
- g) iron(III) sulfate .....                      h) lead(II) carbonate .....
- **Action:** I can do this:       I can do this after more revision:       I need more help:
5. • **Check:** I can write balanced chemical equations for chemical reactions where I am given the names of the reactants and the products.
- **Test:** Write the balanced chemical equation for each one of the following word equations. State symbols are not required.
- a) magnesium + silver nitrate → magnesium nitrate + silver  
.....
- b) iron(III) sulfate + sodium hydroxide → iron(III) hydroxide + sodium sulfate  
.....
- c) potassium + water → potassium hydroxide + hydrogen  
.....
- d) carbon disulfide + oxygen → carbon dioxide + sulfur dioxide  
.....
- e) aluminium + zinc chloride → aluminium chloride + zinc  
.....
- f) ethane (C<sub>2</sub>H<sub>6</sub>) + oxygen → carbon dioxide + water  
.....
- **Action:** I can do this:       I can do this after more revision:       I need more help:

6. • **Check:** I am able to write balanced chemical equations for the reactions of acids and bases where I am given the names of the reagents *only*.

• **Test:** a) Complete the general word equation for an acid + reactive metal.

acid + reactive metal → ..... + .....

b) Write the balanced chemical equation for the reaction between hydrochloric acid and calcium. Include state symbols.

.....

c) Complete the general word equation for an acid + base / alkali.

acid + base / alkali → ..... + .....

d) Write the balanced chemical equation for the reaction between nitric acid and aqueous calcium hydroxide. Include state symbols.

.....

e) Complete the general word equation for an acid + metal carbonate.

acid + metal carbonate → ..... + ..... + .....

f) Write the balanced chemical equation for the reaction between sulfuric acid and solid copper(II) carbonate. Include state symbols.

.....

g) Complete the general word equation for an ammonium salt + base / alkali.

ammonium salt + base / alkali → ..... + ..... + .....

h) Write the balanced chemical equation for the reaction between aqueous ammonium sulfate and aqueous sodium hydroxide. Include state symbols.

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• **Action:** I can do this:  I can do this after more revision:  I need more help:

7. • **Check:** I can recall the qualitative tests for hydrogen, carbon dioxide and ammonia.

• **Test:** a) Describe the qualitative test for ammonia gas.

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b) Describe the qualitative test for carbon dioxide gas.

.....

c) Describe the qualitative test for hydrogen gas.

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• **Action:** I can do this:  I can do this after more revision:  I need more help:

# Periodic Table

Periodic Table of the Chemical Elements (2017)

Group																					
1	2											13	14	15	16	17	18				
		<b>Key</b> atomic number atomic symbol name relative atomic mass										1 H hydrogen 1.0									2 He helium 4.0
3 Li lithium 6.9	4 Be beryllium 9.0											5 B boron 10.8	6 C carbon 12.0	7 N nitrogen 14.0	8 O oxygen 16.0	9 F fluorine 19.0	10 Ne neon 20.2				
11 Na sodium 23.0	12 Mg magnesium 24.3	3	4	5	6	7	8	9	10	11	12	13 Al aluminium 27.0	14 Si silicon 28.1	15 P phosphorus 31.0	16 S sulfur 32.1	17 Cl chlorine 35.5	18 Ar argon 39.9				
19 K potassium 39.1	20 Ca calcium 40.1	21 Sc scandium 45.0	22 Ti titanium 47.9	23 V vanadium 50.9	24 Cr chromium 52.0	25 Mn manganese 54.9	26 Fe iron 55.8	27 Co cobalt 58.9	28 Ni nickel 58.7	29 Cu copper 63.5	30 Zn zinc 65.4	31 Ga gallium 69.7	32 Ge germanium 72.6	33 As arsenic 74.9	34 Se selenium 79.0	35 Br bromine 79.9	36 Kr krypton 83.8				
37 Rb rubidium 85.5	38 Sr strontium 87.6	39 Y yttrium 88.9	40 Zr zirconium 91.2	41 Nb niobium 92.9	42 Mo molybdenum 95.9	43 Tc technetium —	44 Ru ruthenium 101.1	45 Rh rhodium 102.9	46 Pd palladium 106.4	47 Ag silver 107.9	48 Cd cadmium 112.4	49 In indium 114.8	50 Sn tin 118.7	51 Sb antimony 121.8	52 Te tellurium 127.6	53 I iodine 126.9	54 Xe xenon 131.3				
55 Cs caesium 132.9	56 Ba barium 137.3	57–71 lanthanoids	72 Hf hafnium 178.5	73 Ta tantalum 180.9	74 W tungsten 183.8	75 Re rhenium 186.2	76 Os osmium 190.2	77 Ir iridium 192.2	78 Pt platinum 195.1	79 Au gold 197.0	80 Hg mercury 200.6	81 Tl thallium 204.4	82 Pb lead 207.2	83 Bi bismuth 209.0	84 Po polonium —	85 At astatine —	86 Rn radon —				
87 Fr francium —	88 Ra radium —	89–103 actinoids	104 Rf rutherfordium —	105 Db dubnium —	106 Sg seaborgium —	107 Bh bohrium —	108 Hs hassium —	109 Mt meitnerium —	110 Ds darmstadtium —	111 Rg roentgenium —	112 Cn copernicium —		114 Fl flerovium —		116 Lv livermorium —						
lanthanoids	57 La lanthanum 138.9	58 Ce cerium 140.1	59 Pr praseodymium 140.9	60 Nd neodymium 144.2	61 Pm promethium —	62 Sm samarium 150.4	63 Eu europium 152.0	64 Gd gadolinium 157.3	65 Tb terbium 158.9	66 Dy dysprosium 162.5	67 Ho holmium 164.9	68 Er erbium 167.3	69 Tm thulium 168.9	70 Yb ytterbium 173.1	71 Lu lutetium 175.0						
actinoids	89 Ac actinium —	90 Th thorium 232.0	91 Pa protactinium 231.0	92 U uranium 238.0	93 Np neptunium —	94 Pu plutonium —	95 Am americium —	96 Cm curium —	97 Bk berkelium —	98 Cf californium —	99 Es einsteinium —	100 Fm fermium —	101 Md mendelevium —	102 No nobelium —	103 Lr lawrencium —						

- Scan the QR Code given below for the answers to this assignment.



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